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Prospector's Course

The Colorado School of Mines  
GOLDEN



# Course for Prospectors

*Third Year*

February 5 to March 3, 1917 ✓



November  
1916

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FIRST PROSPECTORS' CLASS, 1915

# The Colorado School of Mines, Golden

HOWARD C. PARMELEE, *President*

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## Third Prospectors' Course *February 5 to March 3, 1917*

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The Short Course for Prospectors, which was inaugurated by the Colorado School of Mines in January, 1915, proved so popular and profitable to those who attended, that in 1916 the course was extended. As a result of the success which attended this innovation, it has become an established part of the work of the School of Mines and will be offered annually as long as there is any apparent need or demand. The third annual Short Course for Prospectors will be given at Golden during the four weeks beginning February 5 and ending March 3, 1917.

The only important change from the course of 1916 will be a shortening of the time from five weeks to four. It is planned to condense the work and keep the prospectors occupied throughout the day instead of in the morning only. This will be an advantage from the point of view of instruction and will make the course less expensive to those who attend.

All of the courses will be of the most practical nature and will comprise instruction in mineralogy, common minerals and rocks; elementary chemistry; principles of ore dressing, assaying and the more common metallurgical processes; methods of valuing, buying and selling ore; placer and lode mining; location of mining claims; first aid to the injured and



safety engineering. These course are outlined in detail on succeeding pages. They will be given entirely by regular members of the faculty and will consist in lectures, supplemented by laboratory demonstrations.

Prospectors and others who expect to take advantage of this work are asked to notify the school authorities as soon as possible, in order that ample preparation can be made for the work. Address all correspondence to The Registrar, Colorado School of Mines, Golden, Colorado.

## FEE

A single fee of two dollars is charged for the entire course of four weeks, and is payable in cash on registration.

## BOARD AND LODGING

Board and lodging can be secured in Golden at prices ranging from \$5.00 to \$7.00 per week. Upon request, made sufficiently in advance, we will be glad to aid any one in obtaining suitable accommodations. There are no dormitories in connection with the school.

## HOW TO REACH GOLDEN FROM DENVER

Through tickets, over the Colorado & Southern Railway, may be purchased at any railroad station in Colorado direct to Golden. There are also two electric lines from Denver on half-hour schedules during the day. The cars on these lines leave the station on Arapahoe street, between Fourteenth and Fifteenth streets, on the hour and half-hour. The fare from Denver to Golden is the same on each line, viz.; five cents to the city limits and twenty-five cents thence to Golden.

On reaching Golden secure your board and lodging, then come to Guggenheim Hall and get your registration card from Mr. T. C. Doolittle, Registrar and Business Manager. Without this card, no one can be admitted as a regular student in any course.

## Outlines of the Courses Offered

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### COMMON ROCKS AND MINERALS—

*Prof. Patton and Prof. Ziegler*

A course of thirty-six hours, mostly laboratory practice, devoted to the study of common minerals and rocks. The instruction will include blowpipe reactions, using the simplest apparatus and appliances. A few of the rarer ores in which prospectors are just now greatly interested, such as those of tungsten, molybdenum, etc., will be considered.

### GEOLOGY—*Prof. Patton*

An eight-hour lecture course devoted to such geological features as throw light on the origin and manner of occurrence of ore deposits and on the structural features frequently met with in mining. These latter include faults and folds, strikes and dips, and the mutual relationship of rock masses.

Particular attention will be given to the kinds of rocks, geological conditions, etc., which appear to affect ore deposition. An important part of prospecting is to know what may be sought for in the different formations.

### CHEMISTRY—*Prof. Test and Prof. Bailar*

A course of thirty-two hours, mostly laboratory work, with such time taken for lectures as may be necessary. The object of the course is to make the prospector more familiar with the use of such apparatus and chemicals as may aid him in supplementing his field work, and to equip him with knowledge of the characteristic properties of the common metals. Some work on the commercially important rare metals will also be given.

### METALLURGY AND ASSAYING—

*Prof. Young and Prof. Haldane*

The work in the department of metallurgy is given in two divisions; the first division comprises eight lectures covering the subjects outlined below. In addition there will be given four afternoons demonstration work in the assaying and metallurgical laboratories. The second division comprises twelve

lectures in ore dressing and metallurgy, together with four afternoons demonstration work in the experimental laboratory. The nature of the demonstration work will be determined largely by the requirements of the class.

#### FIRST DIVISION—*Prof. Haldane*

Principles and methods of sampling as used in mines, mills and smelters; methods of assaying common ores; determination of the value of ores from assay or analysis; how ores are bought and sold; the value of an ore to the producer; simple tests for the prospector.

#### SECOND DIVISION—*Prof. Young*

Nature of ores. crushing, sizing and classification; coarse and fine concentration in water; methods of dry concentration; amalgamation; flotation; electrostatic and magnetic separation; determining percentage extraction; the cyanide process; leaching copper and zinc ores; smelting lead and copper ores; simple treatment plant for prospectors.

The laboratories and experimental plant afford exceptional opportunities for demonstration and the student will be given every reasonable facility to study methods and mechanical appliances.

#### PLACER MINING—*Prof. Wolf*

This four-hour course includes a discussion of the theory and practice involved in the recovery of precious metals from sand and gravel deposits. Among the subjects considered are: panning, rocking, sluicing, hydraulicking, dredging, dry placering, etc. Typical operations are described for the purpose of illustration.

#### MINING CLAIMS—*Prof. Wolf*

This eight-hour course includes instruction in the methods of acquiring title to mineral lands in the United States. Practical methods of locating and surveying mineral lands are described and instruction is given in the preparation and filing of documents used in acquiring title to lode and placer claims; mill and tunnel sites; timber, stone and coal lands; water rights. Mining laws which are important to the prospector are discussed and explained.

### LODE MINING—*Prof. Wolf*

This eight-hour course includes a discussion of surface prospecting, methods employed and equipment required. The opening and developing of prospects to the best advantage are discussed, as also proper methods of sampling in the mine and on the dump.

### MINE SAFETY ENGINEERING—*Prof. Roberts*

The course in Mine Safety Engineering includes the following:

1. General safety in mines.
2. Explosives: Composition of explosives in general use in coal and metal mines and quarries; composition of resultant gases from explosives and the dangers of going back too soon after shots are fired; the proper and improper methods of handling explosives.
3. Mine gases; gases encountered in coal and metal mines, prospect holes and shafts, their composition, methods of detecting and removing same, and precautions to be taken to prevent accumulation; methods of recovering and removing men overcome by same.
4. Mine lighting.
5. Mine fires; their causes, methods of preventing and extinguishing same.
6. Mine rescue methods and appliances, including demonstrations of various types of mine rescue apparatus in use, resuscitating devices, pulmotor, lung motor, etc.
7. First aid to the injured; a full and complete course in first aid will be given at night to all those who care to take same. This will include the following: The human body; wounds, with and without bleeding; bruises, sprains and dislocations; fractures, simple and compound; bandages and splints; shock, fainting, poisoning, etc.





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Underground Rock Drilling in the C. S. M. Mine